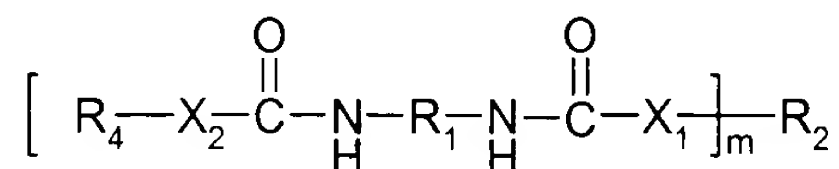


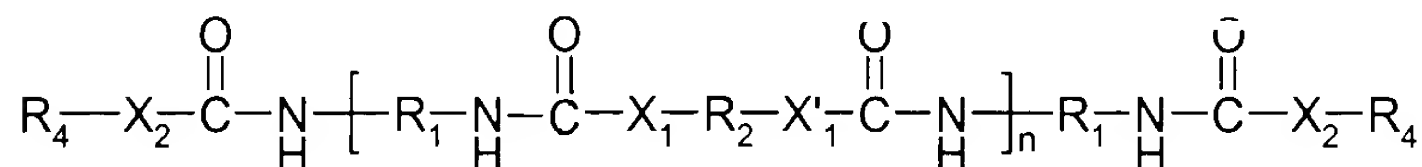
What is Claimed is:

1. An electrically conductive adhesive comprising (a) an epoxide-modified polyurethane resin; (b) a cross-linking agent; (c) an adhesion promoter; and (d) a conductive filler.

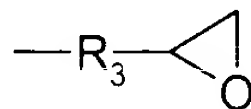
2. An electrically conductive adhesive as defined in Claim 1, wherein the epoxide-modified polyurethane resin has the following structure:



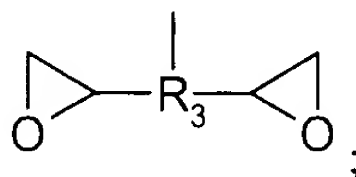
or



- where m is 2 or 3; n is one or greater; R_1 is an aliphatic hydrocarbon radical, a cycloaliphatic hydrocarbon radical, an aromatic hydrocarbon radical, or an araliphatic hydrocarbon radical; R_2 is an aliphatic hydrocarbon radical, a cycloaliphatic hydrocarbon radical, an alkoxy radical, a polyester; or a polyether; R_4 is either:



or



- R_3 is an aliphatic hydrocarbon radical, a cycloaliphatic hydrocarbon radical, an alkoxy radical, a polyester, or a polyether; and X_1 and X_2 are either a single bond, $-O-$; $-COO-$; $-NH-$; or $-S-$.

3. An electrically conductive adhesive as defined in Claim 1, wherein the cross-linking agent selected from the group consisting of aliphatic amines, aromatic amines, carboxylic acid anhydrides, thiols, alcohols, phenols, isocyanates, tertiary amines, boron complexes, inorganic acids, hydrazides, and imidazoles.

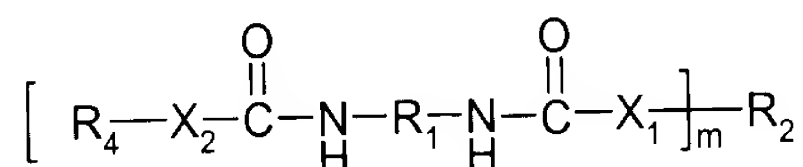
4. An electrically conductive adhesive as defined in Claim 3, wherein the cross-linking agent is selected from the group consisting of liquid imidazoles and anhydrides.

5. An electrically conductive adhesive as defined in Claim 4, wherein the cross-linking agent is a carboxylic acid anhydride cross-linker.

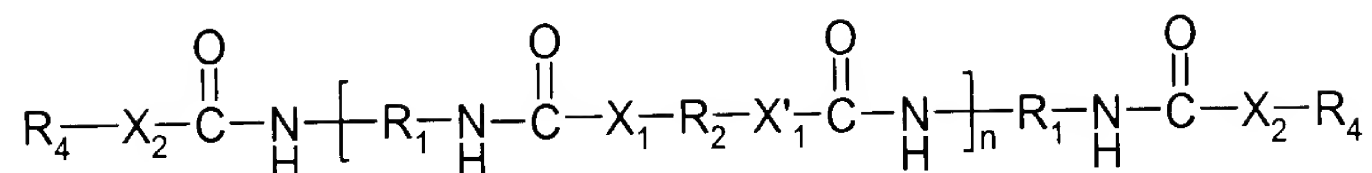
6. An electrically conductive adhesive as defined in Claim 1, wherein the adhesion promoter is selected from the group consisting of alkylchlorosilanes,

diaminoalkylsilanes, styrylaminoalkylsilanes, ureidoalkylsilane esters, epoxyalkylsilane esters, alkoxysilanes, acryloxyalkylsilane esters, methacryloxyalkylsilane esters, mercaptoalkylsilane esters, and combinations thereof.

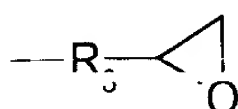
7. An electrically conductive adhesive as defined in Claim 1, wherein the conductive filler is a solid metal particle selected from the group consisting of nickel, copper, aluminum, palladium, silver, gold, platinum.
8. An electrically conductive adhesive as defined in Claim 1, wherein the conductive filler is selected from the group consisting of carbon black, carbon fiber and graphite.
9. An electrically conductive adhesive as defined in claim 7, wherein the conductive filler is silver flakes.
10. An electrically conductive adhesive as defined in Claim 1, further comprising one or more of (e) an epoxy resin; (f) a catalyst; and (g) a diluent.
11. An electrically conductive adhesive as defined in Claim 10, wherein the epoxy resin is present in an amount from 0 to 80 percent and is selected from the group consisting of bisphenol A, bisphenol F, and cycloaliphatic epoxides.
12. An electrically conductive adhesive as defined in claim 11, wherein the epoxy resin is bisphenol F.
13. An electrically conductive adhesive as defined in claim 10, wherein the catalyst is present in an amount from 0 to 10 weight percent and is selected from the group consisting of imidazoles, tertiary amines and ureas.
14. An electrically conductive adhesive as defined in claim 10, wherein the diluent is present in an amount from 0 to 50 weight percent and is a glycidyl ether.
15. A method of joining electrically conductive materials, which comprises the step of applying an adhesive composition comprising:
 - (a) an epoxide-modified polyurethane resin;
 - (b) a cross-linking agent;
 - (c) an adhesion promoter; and
 - (d) a conductive filler.
16. The method of Claim 15, wherein the epoxide-modified polyurethane resin has the following structure:



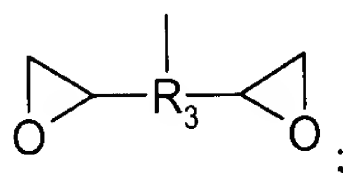
or



where m is 2 or 3; n is one or greater; R₁ is an aliphatic hydrocarbon radical, a cycloaliphatic hydrocarbon radical, an aromatic hydrocarbon radical, or an araliphatic hydrocarbon radical; R₂ is an aliphatic hydrocarbon radical, a cycloaliphatic hydrocarbon radical, an alkoxy radical, a polyester; or a polyether; R₄ is either:



or



R₃ is an aliphatic hydrocarbon radical, a cycloaliphatic hydrocarbon radical, an alkoxy radical, a polyester, or a polyether; and X₁ and X₂ are either a single bond, -O-; -COO-; -NH-; or -S-;

wherein the cross-linking agent is a carboxylic acid anhydride cross-linker, and the conductive filler is silver flakes.

17. The method of Claim 16, wherein the composition further comprises one or more of (e) an epoxy resin; (f) a catalyst; and (g) a diluent.

18. The method of Claim 16, wherein the electrically conductive materials are present on a printed circuit board.